Citizen science to fill hydro-meteorological data gaps in rural watersheds

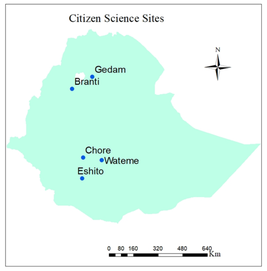
Context

Significant amount of resources has been invested on sustainable land management in Ethiopian watersheds. However, the hydrological impact of the interventions is not known yet mainly due to lack of data.

Innovative ways of working

A citizen science approach is tested to improve local understanding of hydrological processes and their relationship to watershed management;

"Citizen science refers to the participation of the general public (i.e., non-scientists) in the generation of new scientific knowledge"



- Citizen science for hydrology was tested by mobilizing large number of local researchers and experts in five study sites in Ethiopia;

Main findings:

Citizen science approach has a potential to enhance groundwater governance. Volunteer citizens (citizen scientists) can collect reliable data to monitor hydrological impacts of interventions;

Reliability of data can be enhanced through introducing quality assurance and diversifying incentives;

A hydrology model is further developed to evaluate impact of watershed management using citizen science data.

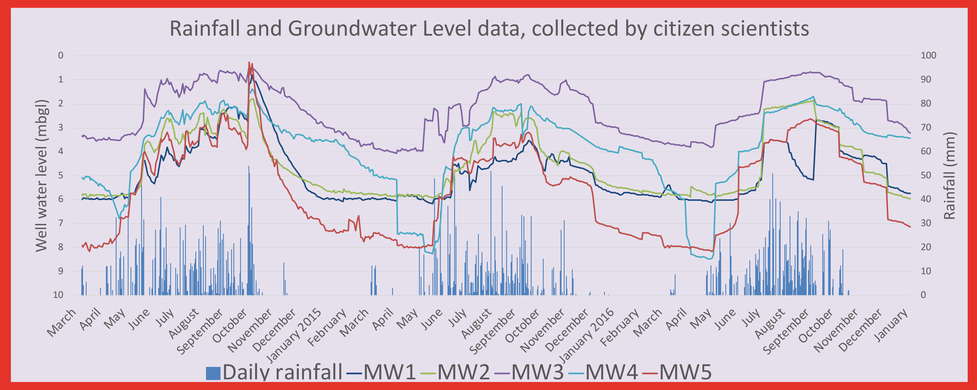
Short term citizen science data is made useful for impact assessment by systematically parameterizing a rainfall-runoff model

Active participation of citizens in hydrological data collection enhances their understanding of hydrological processes and their relationship with watershed management;

Citizen science provides equal opportunities to men and women volunteer citizens; to achieve inclusion and empowerment aims. However, participation of women is constrained by structural barriers;

There is interest for citizen science data in Ethiopia. However, institutional/mandate issues constrain implementation of the approach.

Guideline is prepared to support mainstreaming of citizen science.



Future steps

In the coming 5 years, IWMI and Newcastle University will

- Integrate citizen science, remote sensing and modelling for bottom-up approach of water resources management;
- Evaluate citizen science for water quality and climate hazard mapping;
- Address gender and institutional aspects;
- Increase the number of sites, citizen scientists, para-hydrologists and local partners in Ethiopia;

International Water Management Institute (IWMI).
Partner: Newcastle University

Funders

We would also like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders/

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